A RETROSPECTIVE STUDY OF INJURIES PREVALENCE IN COMPETITIVE VOLLEYBALL PLAYERS

RESEARCH PROPOSAL

SUBMITTED TO

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY,

NANDED

FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

IN THE FACULTY OF PHYSICAL EDUCATION

BY

SRIDHAR KUMAR KOTA

RESEARCH SUPERVISOR

DR. SINKU KUMAR SINGH

HEAD, DEPARTMENT OF PHYSICAL EDUCATION

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY,

NANDED.

DEPARTMENT OF PHYSICAL EDUCATION,

SCHOOL OF EDUCATIONAL SCIENCES,

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY,

NANDED.

YEAR - 2018

CHAPTER-1

INTRODUCTION

Title of the Research:

A Retrospective Study of Injuries Prevalence in competitive volleyball players.

Origin of the research problem:

Bump, set, spike. Volleyball has become an increasingly competitive and popular sport. Volleyball is a game that can be played by all ages and both sexes indoors and outdoors. It can be highly competitive, requiring a high level fitness, agility and co-ordination, or it can be a relaxing and highly enjoyable recreation. The players of the game require competitively concentration, quick thinking and a great deal of movement. In addition the speed of the game requires the players to take quick decisions because of the quick changing situations of attack and defense *(Nicholls 1978).* Volleyball is one of the most popular sports in the world. It is an enjoyable and social sport than can be played from childhood to old age, either at a recreational level or as a competitive level. Volleyball has been demonstrated to be among the most hazardous of organized team sports and injury is a frequent event in football Volleyball (Winter Griffith, 1989; Sinku 2006). Constant use of the arms can cause volleyball players to suffer from shoulder irritation and inflammation, specifically in the rotator cuff muscles. This may lead to rotator cuff tendonitis or even tears. Athletes also may encounter impingement syndrome when muscles or tendons become pinched during movement, resulting in pain or discomfort. Knees are the most commonly injured part of the lower body. Repeated jumping can lead to patellar tendonitis or "jumper's knee." The patellar tendon attaches the patella (knee cap) to the tibia (shin bone). When this tendon becomes irritated or strained, the resulting injury is patellar tendonitis. Jumping also can result in tears of the ACL (anterior cruciate ligament), a ligament located at the inside of the knee that provides stability and the ability to sense the position of the lower leg. Ankle sprains also can occur from running, directional changes, and jumping during volleyball. Most volleyball injuries are a result of overuse and overtraining. Playing on multiple teams during the year gives the young athlete less time for proper rest between practices and games. In addition, when young athletes focus on one sport there is less cross training. This can bring about imbalances in the muscles, meaning that the muscles used all the time are stronger than others in the body. These imbalances can result from repetitive motions such as jumping, landing, and internal rotation of the shoulder during

serves and spikes. Lack of strength and flexibility in the core, shoulders, and legs can lead to poor form in the athlete's jumps and volleys, resulting in injury. Poor landing technique is the most common reason for knee injuries in volleyball players. Athletes should land with their knees over their toes and their hips back. Landing with an increased knee bend or with the knees over the toes places more strain on the knees. Knee and ankle injuries also are caused by a lack of balance or control of the body when jumping and landing. Body control not only decreases the chances of injury, but also increases the power of hits and serves.

Volleyball requires a variety of physical attributes and specific playing skills, therefore participants need to train and prepare to meet at least a minimum set of physical, physiological and psychological requirements to cope with the demands of the game and to reduce the risk of injury.

Volleyball playing largely involves starting, running, slopping, samshing, jumping, kicking, and turning movements that place the players to greater risk of injury (Waston 1993).

In the epidemiological studies, injury occurs in training or matches interrupted or hampered play (Sinku 2006 and 2007). Special treatment required in order to continue the game, or if the injury has made playing impossible. Unfortunately, Volleyball received a little interest in the sphere of sports medicine.

Volleyball is a high risk sport dominated by overuse injuries while recovery time for injuries is relatively long, but only few working days are lost by the playes to return back to play, thus leading to abuse of the injured sites. In Volleyball only a few studies have been made in the literature regarding incidents of injury and pattern, possible risk factors and injury prevention (singh 2010). In Volleyball overuse injuries are the most frequent occurrences of injury and injuries are traditionally divided into contact and non contact mechanism in which case contact injury are transmitted from the playing surface to the injured body part.

Keeping in view the paucity of information about sports injuries in general and Volleyball playing in particular, an attempt has been made in this area to investigate the nature, location, causes, outcome of injuries and the possible risk factors involved among Volleyball. Recently, injuries have been described as the greatest source of stress, and single most important issue in sports. Injuries may lead to psychological problems such as anxiety, depression and unhealthy behaviours such as increased drug and alcohol abuse. These negative moods and behaviours place the athlete at risk for injuries. Risk factors for injuries in sport are commonly divided in intrinsic and extrinsic risk factors. Intrinsic related risk

factors can further been classified in physical and **psychological risk** factors. The physical risk factors consists of age, gender, previous injuries, level of play, flexibility, joint instability, generalized joint laxity, muscle strength, aerobic fitness, functional performance, prolonged reaction time, players height,weight and BMI, and anatomical alignment (Ostenberg and Roos 2000). The psychological risk factors reported are for example live-event stress, fighting mentality and risk-taking behavior (Dvorak et al. 2000). Extrinsic related risk factors may be the playing surface, player exposure, playing position, time in match, equipment , coaching-related factors, rules and foul play. Understanding the etiology of risk factors and mechanisms of injuries in volleyball is an important base of preventive measures.

Statement of the problem

The investigators become interested in determining the possible risk factors involved in Volleyball injuries, mechanism of injuries severity of injuries and psychological factors as a predictors of injuries in Volleyball. The problem was stated as "**A Retrospective Study of Injuries Prevalence in competitive** Volleyball **players**" taken up to assess the level of familiarity of these subjects among Volleyball players. It was further aimed to help the Sports Scientist and Administrators to enable them to for mutate a better procedure to minimize the incidence of injuries to Volleyball players.

Significance of the Study:

1. The Study will help to know about the various causes of injuries in Volleyball.
2. It would facilitate the physical educationist, coaches, Volleyball expertise to provide appropriate training to know whether injury problem like strain, sprain, dislocation, fracture are related to the sports performance or not.
3. It will help the players, coaches, physical educators to take preventive measures to minimize the injuries.
4. This study may motivate other investigator to take up similar studies selecting more number of players. So that more information related to injury of Volleyball players will be highlighted.

Objectives:

1. To quantify injuries prevalence in Volleyball players and to compare and determine the nature, sites, causes, period and the possible risk factors involved.

2. To suggest the remedial measures for different injuries.

Hypothesis of Study

There would be significant difference of Biological maturity of injuries among the competitive volleyball players

Delimitations of the study.

1. The present study will be delimited to only Volleyball players.
2. The study will be delimited to the Volleyball players of 14-30 years of age.
3. The study was delimited to injuries sustained due to Volleyball one year of period

Limitations of the study

1. Since the Volleyball players belonged to different training back ground this may be considered as the limitation of the study.
2. The availability of the sophisticated instrument which may effects the results may also be considered as the limitation of the study.
3. Since the football players belonged to different level of performance, hence the prior experience of the players may be considered as a limitation of the study.

Definition and Explanation of Important Technical Terms

Volleyball Injuries

Volleyball is a semi contact sport "due to its physical nature, but epidemiological studies suggest that many injuries are not due to direct contact, but other causes such as overuse or overstrain (Ekstrand and Gillquist, 1983). The fact that expert clinicians have, apparently, diverse opinions on the nature and etiology of injury within soccer is due to differing interpretation of the available epidemiological evidence**.**

Sprain

A Sprain is an injury involving a ligament, Ligament are basically inelastic and designed to prevent abnormal motion of a joint whenever a joint is forced to move in an abnormal directions ligaments are stressed some of the common sprain in football are :

Muscle Cramp:

"They are painful, sustained contraction of all the fiber in a muscle. They can lost for just a few seconds or continue for several hours " cramp occurs most frequently under competitive playing conditions. Increase heat, high humidity fluid loss, fatigue and tension all are contributory factors. A player having a previous history of muscle cramp is more likely to in fine floe again. Losses of salt, potassium, Magnesia, and even zinc have been postulated etiologic factors. However the exact cause is not known.

Muscle Pull:

It is an acute tear of skeletal muscle fiber and is characterized by sudden localized and persistent pain in a muscle, e.g. horse rider on inner thigh. Muscle pull resulting from lack of proper warm up before physical activity, poor flexibility, over training, lack of co-ordination of activity. Poor training and imbalance in muscular strength between agonistic and antagonistic muscle particularly two joint it also occurs most frequently under competitive and training conditions.

Fractures :

An interruption in the continuity of the bone which may be a complete break is an incomplete break or minor crack.

Dislocation :

Dislocation of the joint occurs when the articular surfaces are completely separated from each other so that all subluxation occurs when the articular surfaces are partially separated but there is still some part of each surface in contact. The main cause of either dislocation or subluxations is trauma. Congenital malformation of the joint surface can occur and this could result in dislocation, as for example in a congenital dislocation of the hip.

Soft Tissue Injuries :

Soft Tissue injuries comprises damage to ligaments, muscles, tendons with synovial sheaths, fascia, and inter articular cartilage.

Injuries to Ligaments :

Sprain, Strain and Rupture are terms used to denote injuries. Acute sprain of the ligament is caused by a sudden twisting or wrenching of a joint which results in

overstretching of the ligament. It is associated with the muscle controlling the joint being momentarily off guard so that the ligament is subjected to the full force of the movement. Only some of the fabrics are reputed, the severity of the injury. The joint remains stable but the quality of stability depends on the number of fibers remaining intact. Chronic sprain of a ligament is caused by repetitive stretching from a minor force which may be due to bad postural habit or poor quality of movement. Strain may be used as term in the diagnosis of partially ruptured ligaments but is more commonly applied to muscle and tendon injuries. Complete rupture is disruption of all fibers of the ligament caused by a sudden, violent force such that the joint is

Tendon Injuries :

Tendons are strong structures which connect muscle to bones. Some tendons are enclosed in a synovial sheath. Tendons that do not have a synovial sheath slide smoothly within a compartment at deep fascia. The main cause of tendon injuries may be traumatic. i.e. Direct cuts, Sudden stretch. These injuries may be partial or complete to the football players.

Chapter II

Review of related Literature

The review of the literature for this study focuses on procedures used indentify the incidence, occurrence causes and prevalence of sports injuries. The review focuses on a number of different instruments used to identify injuries and it nature.

The review of related literature is instrumental in the selection of topic, formulation of hypothesis and deductive reasoning to the problem. It helps to get a clear idea and supports the findings with regard to the problem under study. The literature in any forms the foundation upon which all future work will be built. "The review of literature is generally used as a basis for inductive reasoning for locating and synthesizing all the relevant literature on particular topic". The research scholar has gone through the available related literature, which are relevant to the present study and have been presented in sports related injuries.

The following review has been selected by the investigator

Jadhav et.al (2010) was to quantify the injuries of varsity v**olleyball** players and to determine the nature, location, causes, outcome of injuries and the possible risk factors involved. Information on injuries was collected through a questionnaire from members of twelve Indian varsity teams participating in all India Inter Varsity tournament held in Dr. Babasaheb Ambedkar Marathwada University, Aurangabad Maharashtra in December 2007. The age range of the players was 18 to 25 years. 58% of players were in the age range of 22 to 25 years. The volleyball players were asked to recall injuries over the preceding one year period. A total of 121 out of 144 volleyball players sustained injuries. One hundred seventy eight injuries were recorded of which 36% injuries were of recurrent nature. Lower limb injuries were found to be predominant; the ankle and knee being the most commonly injured anatomical location. Most injuries involved soft tissue and related to the muscle and tendon. Most common circumstances giving rise to injuries were spiking (33.70%), blocking (24.15%), diving (17.41%) and setting (11.23%). It was further observed that volleyball players directly involved in attack or defense were found to be more susceptible to injury.

Muscle injuries were observed to be the most common type. Spiking is the most common cause of injuries. The results of the research provide a useful insight into the nature, incidence and sites of injuries in varsity level volleyball players. **Sinku S.K. et.al (2008)** investigated the football injuries in relation to field position in competitive football players and to determine the nature, location, causes outcome of injuries and the possible risk factors involved. A total of 98 out of 128 football players sustained injuries in relation to field position. 108 injuries were recorded of which 27% were reoccurring injuries. Lower limb injuries predominated; the ankle and knee being the most commonly injured anatomical site. A significant proportion of injuries occurred in the upper limb region. A high number of injuries occurred to the goal keeper, and where mainly related to the thumps. Most injuries were of soft tissue in nature and related to muscle, ligament and tendon. Most common situations giving rise to injuries were collision (27.77%), twist/turn (22.22%) and stumble (17.59%). Lower limb injuries was found to be predominated, muscle injuries being the most common type, collision is common cause of injuries.

Söderman et.al.(2001) The following possible risk factors for leg injuries in female soccer players were studied: age, anatomical alignment, generalized joint laxity, thigh muscle torque, muscle flexibility, ligamentous laxity of the knee and ankle joints, recent injuries, and duration of soccer exposure. A total of 146 players from 13 teams in the second and third Swedish divisions underwent clinical examination, isokinetic measurements of quadriceps and hamstring torques, and testing of postural sway of the legs. All soccer-related leg injuries resulting in absence from at least one scheduled practice session or game were recorded during one outdoor season (April-October). In 50 players there were 61 traumatic injuries, and 17 players sustained 19 overuse injuries. The overall injury incidence rate (traumatic and overuse) was 5.49/1000 h of soccer. Variables significantly increasing the risk of traumatic leg injuries included generalized joint laxity, low postural sway of the legs, hyperextension of the knee joint, and a low hamstring-to-quadriceps ratio during concentric action. Multivariate logistic regression showed hyperextension of the knee joint, a low postural sway, reduced H/Q ratio during concentric action, and a higher exposure to soccer to significantly increase the risk of traumatic leg injury. All five players who suffered an anterior cruciate ligament injury during the study period had a lower hamstring-to-quadriceps ratio during concentric action on the injured side than on their non injured side.

Peterson et.al.(2000) studies the incidence of football injuries and complaints as related to different age groups and skill levels was studied over the period of 1 year. A total of 264 players of different age groups and skill levels were observed for 1 year. Five hundred fifty-eight injuries were documented. Two hundred sixteen players had one or more injuries. Only 48 players (18%) had no injury. The average number of injuries per player per year was 2.1. Injuries were classified as mild (52%), moderate (33%), or severe (15%). Almost 50% of all injuries were contact injuries; half of all the contact injuries were associated with foul play. The majority of injuries were strains and sprains involving the ankle, knee, and lumbar spine. Nearly all players (91%) suffered from complaints related to football. Only 23 players reported no injuries and no complaints. Prevention programs, fair play, and continuing education in techniques and skills may reduce the incidence of injuries over time.

Cromwell, f. j. Walsh. Gromely (2000) in a six month period by the means of a questionnaire on elite gaelic footballers investigated that ninety five injuries were recorded giving an incidence rate of 1.78 injuries per subject per year, of which 35% of injuries were sustained during training session. A total 88 out at 107 subject sustained injuries over the study period. Lower extremities injuries predominated (77%), the ankle being the most commonly anatomic site. Most injuries were soft tissue in nature; muscle, 33% Ligament 32%, tendon, 16%. The most common situations giving rise to injuries were collisions (22%) and twist turn (19%) foul play only accounted for about 6% of injuries.

Hawkins et.a; (2001) suggested that muscular strains are the single most commonly reported injuries in English professional soccer. This data is consistent with previous research, which reported similar findings. (Howkins and fuller, 1999; Lewin, 1989, Ekstrand and Gillguist, 1983, 1983 b.). This epidemiological research (Studies of the incidence of injury) sought to identify the cause of occupational injury of professional soccer players and served as the exploratory level of research on the nature of soccer injuries. Further research has been attempted to investigated the relationship between extrinsic and intrinsic factors and the incidence of muscular injury, particularly hamstring muscle injury (Orchard et. al. 1997; Orchard 2001).

John Orchard (2000) surveyed Groin injuries are the second most frequent injury category in Australian football league, with an incidence of 4:6 injuries per 1000 player per week. They appear to be common at all clubs due to the demands of the game and despite the best

preventive efforts of team medical and fitness staff specific diagnosis within the category of groin injuries is controversial "SPORTS" hernias, adductor tendonopathy, osteitis, public obturator nerve entrapment and nonspecific terms, such as groin strain and publgia, are diagnosed to varying degrees by different team physicians.

Lewin (1990) reporting injuries sustained at Arsenal football club state. One aspect not covered in this survey was the relevance of players position to the incidence of injury. This study examines the type of injuries in Amateur football players. Prosecuting to the accident and emergency department of king's college hospital in relation to the position at the field.

Chomiak et.al..*(2000)* were to analyze factors related to the occurrence of severe football injuries in players of different ages (14 to 42 years) and different skill levels (local teams to first league teams). In the Czech Republic, 398 players were followed up for 1 year, during which time they sustained 686 injuries. Of these, 113 (16.5%) were severe injuries. Ninety-seven severe injuries (86%) were able to be documented in detail. Trauma was the cause of 81.5% of the injuries and overuse was the cause of 18.5%. Joint sprains predominated (30%), followed by fractures (16%), muscle strains (15%), ligament ruptures (12%), meniscal tears and contusions (8%), and other injuries. Injuries to the knee were most prevalent (29%), followed by injuries to the ankle (19%) and spine (9%). More injuries occurred during games (59%) than in practice. Twenty-four percent of the injured players had suffered a previous injury of the same body part. Forty-six percent of injuries were caused by contact and 54% involved no body contact. Thirty-one percent of severe injuries were caused by foul play.

Fuller, et. al (2004) studied to understand how tackling leads to injury in football, to develop a framework for classifying tackles and to plentify tackles with the greatest propensity to cause injury. Video recordings of 123 matches in three FIFA Tournaments were used to indentify tackling parameters. Team physicians prepared report of post match medical attention to players. tackle from the side were twice as likely to require post match medical attention as tackle from behind. Injuries to the head/neck of tackled and tackling players and the torso of tackling players were more like to receive on pitch, medical attention than other injuries. Injuries to the foot for tackled and tackling players and the lower leg and high for tackling players were less likely to receive on pitch medical attention than other injuries. Tackles with the greatest propensity for causing injuries involved dash of heads and two footed tackles for tackled players and dash of heads, two footed tackles, jumping

vertically and tackles from the side for tackling players. **Ivarsson and Johnson (2010)** reported that between 65–91% of elite football players in Sweden have at least one injury per year. Several studies define different physiological and psychological factors affecting athletic injury-risk. The purpose of this study was to examine the relationship between (a) personality factors, b) coping variables, and (c)stress and injury risk. Participants were 48 male football players from 3 Swedish teams ranging in age from 16 to 36 years (M = 22 years). Participants completed 5 questionnaires: Football Worry Scale, Swedish universities Scales of Personality, Life Events Survey for Collegiate Athletes, Daily Hassle Scale and Brief COPE. Information on injuries was collected by athletic trainers of the teams over 3-months. Results suggest injury was significantly predicted by 4 personality trait predictors: somatic trait anxiety, psychic trait anxiety, stress susceptibility, and trait irritability. Collectively, the predictors self-blame and acceptance could explain 14.6% of injury occurrence. More injuries were reported among players who score high in daily hassles. **Lysens et al. (1989)** examination of accident prone and overuse prone profiles of young football players, acknowledge the importance of physical traits in predisposing a player to injury, and it is stressed that psychological factors need to be considered, even in relation to profiling the overuse prone player. A number of studies exist on psychological impact and/or psychosocial response of injuries in athletes, but very limited research was found in terms of the psychological predictors of athletic injury (Junge, 2002). Most studies on psychological impacts of sport injuries discussed on psychological predictors as the factors that influence occurrence of injury. Therefore, it is a really challenging part in completing this study in terms of getting literature reviews that have been done in this specific area before. Series of specific psychological attributes have been investigated in connection with sports injuries. The empirical studies published to date concerning the relationship between sports injuries and psychological factors have employed heterogeneous designs, various criteria, different evaluation strategies, and, at times, have also displayed considerable methodological flaws. This renders comparison between the studies somewhat difficult Specific examples of these deficiencies include lack of differentiation between the type of sport (Smith et al., 1990a) or between the sexes (Rider & Hicks, 1995), retrospective investigation of injuries (Schafer & McKenna, 1985),investigation periods varying between 3 months and 1 year (Taimela et al., 1990a), and no detailed definition of the criteria used (frequency of injury, severity of injury, absence from the sport).A number of variables, however, have been examined as potential predictors of injury occurrence in sport. Early work in this area provided descriptive accounts of the types of athletes thought to be prone to injury and suggested that intrapersonal conflict,

anxiety, depression, guilt and low self-confidence were important contributors to injury occurrence (Sanderson, 1977). Subsequent research has taken a variety of other factors into account, and the manner in which they interact has been summarized by **Andersen and William (1988b)** in their stress-related model of the injury occurrence process in sports. An understanding relating to factors which help to avoid sports injury by a coach or an athletic trainer will help to relieve an athlete anxiety or stress that the injury could cause. Besides the physical factors, factors relating to mental state of the player have to be considered for treatment of sports injuries.Frustration, depression, anger and tension appeared most often and were the highest ranked emotions (Crossman, 1997; mith, 1990 as cited in Smith, 1990). Among injured athletes of collegiate or elite status, common responses to injury were disbelief, fear, rage, depression, tension, and fatigue. (Weiss & Troxel, 1986 as cited in Smith, 1990) Johnston and Carroll (2000) studied differences between injured and uninjured athletes and reported that injured athletes disclosed greater negative affect, lower self-esteem, and higher levels of depression and anxiety. In congruence with Johnston and Carroll's findings, research on psychological consequences of athletic injury among high-level competitors revealed that injured athletes exhibited greater depression and anxiety and lower self-esteem than control groups immediately following physical injury and at follow-up sessions (Leddy, 1994).Fear is another emotion prevalent among injured athletes. Athletes are fearful about re-injury and because of this fear, they may be reluctant to train with full intensity (as cited in Shuer, 1997). Some athletes may be reluctant to return to training at all as a result of the fear. Weiss and Troxel (1986) found that athletes expressed an inability to cope with injury, activity restriction, long rehabilitation, and feelings of being externally controlled by their injury (as cited in Smith, 1990). Several other researchers have recognized that the lack of daily physical activity can affect an injured athlete psychologically. For instance, according to Little (1979), athletes are predisposed to neurotic illness when mandatory deprivation of exercise is necessary because of a preoccupation with fitness or sport (as cited in Smith, 1990). Often times an athlete will use physical activity to cope with stress. When athletes are injured and unable to engage in physical activity they may have difficulty dealing with their daily stresses. Smith (1990) states that "the development of neuroses in fitness fanatics deprived of exercise was at least partially because their life stress prior to injury or illness had been managed by physical activity rather than by articulating emotional concerns." Furthermore, the injury can actually produce additional stress that may induce emotional disturbance. Hardy (1992) suggests that "the major sources of stress that have been reported by sports performers include fear of failure, concerns about social

evaluation by others, lack of readiness to perform and loss of internal control over one's environment."

Deutsch (1985) believes that the nature of the psychological disturbance accompanying athletic injury should be assessed based on personality type, stage of adult development, and circumstances of the injury.

Other studies have recognized the importance of injury severity and the mechanism of injury in psychological response. Wasley's study (1998) on Self-esteem and Coping Responses of Athletes with Acute versus Chronic Injuries, suggests that the type of injury may determine differences in self-esteem and coping behavior. Age is a crucial factor that must be considered when examining the emotional response to injury. According to Weiss (2003), children, adolescents, and young, middle, and older adults differ in their self-perceptions, social influences, emotional responses, motivations, and self-regulation skills relative to physical activity and sport involvement. In her research, Weiss used a developmental perspective, "considering variations in and interrelationships among thoughts, emotions, and behaviors at various periods across the life span." A study by Manuel et al. (2002) on adolescent athletes coping with sports injuries showed that depressive symptoms decreased over time in a sample of injured adolescent athletes. In addition, increased social support was associated with lower initial depressive symptoms. Newcomer and Perna (2005) investigated features of posttraumatic distress among adolescent athletes. Even after adolescent athletes had physically recovered from their injuries, they still experienced injury-related distress (Newcomer, 2003). In a study on the emotional responses of athletes to injury, Weiss and Troxel (as cited in Smith, 1990) interviewed collegiate or elite athletes. Common responses among this older group included disbelief, fear, rage, depression, tension, and fatigue in addition to somatic complaints of upset stomach, insomnia and loss of appetite.

CHAPTER-III

METHODOLOGY:-

The purpose of this study will to determine the retrospective study of Volleyball injuries at various stages .This chapter explained the methodological details used to implement the study. Specifically, presented here are the general perspective and context of the study, an overview of the participants, description of the procedures used in data collection, and an explanation of data analysis.

Demographic Information:

The data was collected through respondents in the form of different descriptive tests. The demographic information about, age, height, weight etc. was obtained before seeking responses.

Target population

The present study determines the injuries to football players. The Target Population of the study was to Volleyball players at state level and varsity football players

Research Design

The design in a research study refers to "the researcher's overall plan for answering the researcher's question or testing the research hypotheses" . This study involves a cross sectional, comparative survey of three groups of Volleyball players in a non-experimental, retrospective design. Retrospective studies usually employ some form of questionnaire and ask subjects to recall injuries that occurred over a particular period.This explores and measures the injuries prevalence in three group Volleyball players. The groups are junior, young and senior Volleyball players. This study aims to compare the Injuries among these

three groups who are playing in the same game and may inform policies and practices designed to reduce injuries and enhance performance.

Ethical Consideration

In collecting the data, the researcher Follow to ethical guidelines, principles, and standards for studies conducted with human beings. The expert Committee of University grants commission has approved the study prior to its implementation. The study included safeguards for protecting humans, which involved three major ethical principles: beneficence, respect for human dignity, and human justice. Beneficence is the protection of participants from physical and psychological harm, exploitation, and performance of some good. The risk/benefit ratio of participation weighs the risk to participants against potential benefits to society. Beneficence implies maximizing benefits over risks. Participants in this study may have developed greater personal awareness of their injury and its ill effects on performance and health. The risks were considered minimal and there were no known physical discomforts during or after participation. There was slight risk of a breach of confidentiality due to the link between participants' responses and their identity. Participation in this study was strictly voluntary. The investigator wish to participants that their data is confidential and never use for any purpose.

The inclusion and exclusion criteria for participants were as follows:

The inclusion criteria are:

1. The participant was agreeing to participate in the study

2. The participants must be competitive Volleyball players in their aged range was 14 to 30 years.

3. The participants were not rotating through other health facility at the time of study.

The exclusion criteria are:

1. The participants advised not to participate if under any serious psychological disorders.

2. Inability to obtain the questionnaire of the respondent.

3. Presence of chronic medical conditions such as asthma, heart disease or any other condition. And

4. Participants not less than aged of 14 and more than 30 years.

Administration of the test:-

Some questionnaires were distributed to football players personally and some cases contacting footballers at the venue of State, University, and National tournament held at different places. Instructions were given to the footballers before filling these questionnaires by the researcher, football coach and football experts.

Tools of the Study:-

For the present study, modified questionnaires prepared by Cromwell, F.J. Walsh Gromely (2000) for Elite gaelic footballers was utilized after the modification of these questionnaires and the test -retest reliability was found out 0.94 by the researcher. The questionnaires were divided by two sections. A and B part consisted of questions of the personal and physical characteristics of the players, including details of age, weight, and height training duration, weekly training , warm up period, no. of completion in one year, any sporting activity other than football participated more than two hours in a week, feeling before completion and feeling before practice etc. The level of commitment to footballers was as curtained by (a) A question examining players participation in other sports, for more than two hours a week to assess the proportion of players. (b) Questions examining exposure to training in terms of the number and training sessions. Other areas investigated including the duration of warm-up, whether protective equipment was worn, and the strong leg used to kick the ball. Number of competition, feeling before training and competition were takes into view. Finally, the subject was asked to indicate according to Yes/No choice (except question

... 8) Whether an injury or injuries have been sustained as a result to three groups of competitive footballers within one years. This final question in part A was structured as a filter-type approach, meaning that no further details were required from the subject if the answer was no to the above question. If the subject responded Yes, he was required to complete the accompanying part B of the questionnaires.In part B, respondents were asked to supply information about the location timing, causes and nature of injuries. Further information was sought about whether the injury occurred during training or competitive matches and whether the condition of the ground contributed to the injury, whether the injury was reoccurring once was also ascertained. Finally, the consequences of the injury were investigated with regard to absenteeism from training or competition, the medical personal, if any, involved in treating the injury, and whether the injured player required hospital admission and players play at which position. The subjects were required to fill out a questionnaire for each injury for one year.

Collection of data:-

Data was collected individually through a questionnaire from 300 Volleyball players of different Academy, Clubs, State and University separately, investigator contacting footballers personally and some cases at the venue of the different tournaments.

Statistical technique:-

Statistical techniques play very significant role in the interpretation of numerical data obtained from individuals by giving numerical expressions to the relationships and the variations with respect to different aspects. Keeping in view the aim of the study, following statistical tools have used for interpretation of the data (Garett, 1981). The statistical computation of data of the present study is used by using SPSS package in the computer.

Tentative Chapterization:

The present study will be divided in the following chapters:

Chapter - 1

The Chapter One outlines the background of the problem under consideration, its significance in the present scenario, the scope of the study, objectives the research intends to achieve and

hypotheses to be established. This chapters also includes the definition and explanation of important technical terms related to the study.

Chapter - 2

The Chapter Two undertakes the review of literature related to the present topic of study and tries to define the problem under consideration in a proper way. Firstly, the chapter defines important terms and concepts in a proper way to give readers an understanding of various terms in the research report. Secondly, it critically reviews the gender-based violence. The chapter identifies the research gaps between the problem under consideration and the available literature on the issues and strongly recommends further exploration on the problem.

Chapter - 3

This includes a detailed methodology of conducting research on the issue under consideration and various components of research design such as the universe, the sample, types of data, tools of data collection, technique of data collection, ethical consideration and methods use to analyse data.

Chapter - 4

The Chapter includes the interpretation of data and results of the study. The results of the study will be illustrated through suitable table and figure. This chapter will also include the discussion of findings.

Chapter - 5

The Chapter five summarizes the findings of the study and conclusions derived thereof. The research has also made some valuable suggestions for further research

References

Aagaard H and Jorgensen U. Injuries in elite volleyball. Scand J Med Sci Sports. 1996;6:228-232.

Aagaard H, Scavenius M, Jorgensen U. An epidemiological analysis of the injury pattern in indoor and in beach volleyball. Int. J. Sports Med. 1997;18:217-221.

Allingham C. The shoulder complex. In: Zuluaga et al. Eds. Sports Physiotherapy: Applied science and practice. Melbourne: Churchill Livingstone, 1995.

Arendt EA. Common musculoskeletal injuries in women. The Physician and Sports Medicine. 1996;24(7):39-48.

Australian Sports Commission (ASC). SportSafe Australia. A national sports safety framework. Australian Sports Commission. Canberra, 1997.

Backx FJG, Beijer HJM, Bol E, et al. Injuries in high-risk persons and high-risk sports. Am J Sports Med. 1991;19(2):124-128.

Bahr R and Bahr A. Incidence of acute volleyball injuries: a prospective cohort study of injury mechanisms and risk factors. Scand J Med Sci Sports. 1997;7:166-171.

Bahr R, Karlsen R, Lian O, et al. Incidence and mechanisms of acute ankle inversion injuries in volleyball. Am J Sports Med. 1994;22(5):595-600.

Bahr R, Lian O and Bahr A. A twofold reduction in the incidence of acute ankle sprains in volleyball after the introduction of an injury prevention program: a prospective cohort study. Scand J Med Sci Sports. 1997;7:172-177.

Bengalia PG, Sartorio F, Ingenuity R. Evaluation of a thermoplastic splint to protect the proximal interphalangeal joints of volleyball players. Journal of Hand Therapy. 1996;9:52-56.

Bergeron MF, Armstrong LE, Maresh CM. Fluid and electrolyte losses during tennis in the heat. Clin Medicine 1995;14(1): 23-32.

Best TM, Garrett WE. Warming up and cooling down.. In: Renstrom PAFH, ed. Sports injuries: Basic principles of prevention and care. London: Blackwell Scientific Publications, 1993.

Bhairo NH, Nijsten MWN, van Dalen KC, et al. Hand injuries in volleyball. Int. J. Sports Med. 1992;13(4):351-354. Bigiliani LU, Kimmel J, McCann PD, Wolfe I. Repair of the rotator cuff tears in tennis players. Am J Sports Med 1992;20(2):112-7.

Blevins FT. Rotator cuff pathology in athletes. Sports Med. 1997;24(3):205-220. Briner Jr WW and Kacmar L. Common injuries in volleyball-mechanisms of injury, prevention and rehabilitation. Sports Med. 1997;24(1):65.

Boden BP, Kirkendall DT, and Garrett WE, Jr. (1998) Concussion incidence in elite college soccer players. Am J Sports Med 26: 238-241

Chomiak J, Junge A, Peterson L, and Dvorak J (2000) Severe injuries in football players. Influencing factors. Am J Sports Med 28: S58-S68

Cromwell, F.J. Walsh Gromely " A Pilot Study examining injuries in elite gaelic football players" British journals of sports medicine 2000, 34: 104-108.

Ekstrand J and Gillquist J (1983a) Soccer injuries and their mechanisms: a prospective study. Med Sci Sports Exerc 15: 267-270

H. Winter Griffith, M.D. (1989), complete guide to sports injuries Motropolitan Book Co. (P).

Hawkins RD and Fuller CW (1996) Risk assessment in professional football: an examination of accidents and incidents in the 1994 World Cup finals. Br J Sports Med 30: 165-170

Hawkins RD and Fuller CW (1998b) An examination of the frequency and severity of injuries and incidents at three levels of professional football. Br J Sports Med 32: 326-332

Hawkins RD and Fuller CW (1999)A prospective epidemiological study of injuries in four English professional football clubs. Br JSports Med 33: 196-203

Heidt RS, Jr., Sweeterman LM, Carlonas RL, Traub JA, and Tekulve FX (2000) Avoidance of soccer injuries with preseason conditioning. Am J Sports Med 28: 659-662

Junge A (2000) The influence of psychological factors on sports injuries. Review of the literature. Am J Sports Med 28: S10-S15

Kujala UM, Kvist M and Osterman K. Knee injuries in athletes. Review of exertion injuries and retrospective study of outpatient sports clinic material. Sports Med. 1986;3:447-460.

Maugham R J, Miller TDB. Incidence of training related injuries among marathon runner, *British Journal of Sports Medicine 17 (3) : 162 – 165 (1983)*

Nielsen AB and Yde J (1989) Epidemiology and traumatology of injuries in soccer. Am J Sports Med 17: 803-807

Orchard J (2001)The AFL penetrometer study: work in progress. J Sci Med Sport 4: 220-232

Orchard J, Seward H, McGivern J, and Hood S (2001)Intrinsic and extrinsic risk factors for anterior cruciate ligament injury in Australian football players. Am J Sports Med 29: 196-200

Ostenberg A and Roos H (2000) Injury risk factors in female European football. A prospective study of 123 players during one season. Scand J Med Sci Sports 10: 279-285

Pardon E.T. Lower extremities are site of more most soccer injuries, *Phys, Sports Medicine 5 (6) : 43 – 48 (1997).*

Saxby T. (1999), Turf toe : "Abstract from the football Australian Conferences" *Journal of Science Medicine in Sports 2 (1) : 36*

Zelisko JA, Nobel HG, etl.Al. A comparison of Men's and Women's professional basketball injuries. *American journal of sports medicine 10 (5) : 297-299, 1982.*